

**DANNEMANN
SIEMSEN
BIGLER &
IPANEMA MOREIRA**

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Eduardo Dannemann (1919 - 1959)
Catharina Bigler (1947 - 1981)
Carl Buschmann (1900 - 1941)
Luiz de Ipanema Moreira (1927 - 1990)

Conselheiros
Gert Egon Dannemann
M. Pestana da Silva Netto
Samir Said Matheus
Tannay de Farias

Rio de Janeiro
Peter C. Siemsen
David Merylees
Gisela Fischer

José Antonio B. L. Faria Correa
Luiz Henrique O. do Amaral
Maria Thereza M. Wolff

Raul Hey

Carlos Cezar Cordeiro Pires
Ivan Bacellar Ahlert
Maria Carmen de Souza Brito

Peter Eduardo Siemsen

Elisabeth Siemsen do Amaral
Ana Lúcia de Sousa Borda
Carla Tiedemann C. Barreto

Atílio José Ventura Gorini

A. Weber N. Milagre

José Eduardo Campos Vieira
Jorge Knauss de Mendonça
Semir da Silva Fonseca

Alvaro Loureiro Oliveira

Rafaela Borges Walter Carneiro
Roger Charles Taylor Troth
Joaquim Eugênio Goulart
José Henrique Vasi Werner
Marcos Velasco Figueiredo

Rodrigo Borges Carneiro

Mauro Ivan C. R. dos Santos

Maria Edina de O. C. Portinari

Renata Hohl

Manuela Romana Gomes Carneiro
Márcia de Oliveira Anechino

André Luiz Souza Alvarez

Eduardo da Gama Carneiro Junior
Sydneia de Souza Trindade

Sandra Leis

Roberto da Silveira Torres Junior
Jussara Tolentino N. Trindade

Tânia Lúcia B. Engelke

Roberta X. da S. Calazans

Rodrigo Rocha de Souza

Filipe Fontes Cabral

Rafael Dias de Lima

Flávia C. de C. M. Amaral

Cândida Ribeiro Caffé

Rita Capra Vieira

André Ferreira Oliveira

Sabrina Cassarà

Mariana A. G. de Souza Starling

José Eduardo de V. Pieri

Markus Michael de M. Wolff

Maurício Teixeira Desidério

Volkhart Hanewald

Bruno Lopes Holzinger

Gustavo Heitor P. L. de Andrade

Amâncio Paulo Neto

Alexia Maria de Aragão da Costa

Rafael Atala de Araujo

Paulo Roberto Diamante

Consultores

Marco Antonio Gonçalves
José Marcelo de O. Fernandes

Marcella Souza G. B. Freire

São Paulo

Gustavo de Freitas Moraes

Henrique Steuer I. de Mello

Frank Fischer

Marina Inês Fuzita Karakanian

Luiz Gonzaga M. Lobato

Daniela Thompson S. Martinez

Sandra Brandão de Abreu

Cláudio França Loureiro

Franklin Batista Gomes

Ana Carolina Lee Barbosa

Luis Carlos S. Duarte

Bruno Falcone

Consultores

Gabriela S. Neves

Paula Santos e Silva

Ana Claudia Mamede Carneiro

PROPRIEDADE INDUSTRIAL

Code: 311878001

World Intellectual Property Organization
(WIPO)
34, Chemin des Colombettes
CH-1211 Geneva 20
Suíça

Fax.: 0041 22 740 1435

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filed on May 18, 2004

EMPRESA BRASILEIRA DE COMPRESSORES S.A. - EMBRACO

Our ref.: P005271-PCT (ffi)

Dear Sirs,

In reply to the first written opinion mailed on June 14, 2004 together with the ISR, the applicant hereby wishes to file the following *informal comments* with respect to item V thereof.

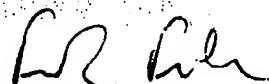
Items 2 - 2.2

The applicant has amended claim 9, to include the limitations of claim 15. The remaining claims were renumbered.

Since the subject matter of claim 15 is considered to be new and inventive, the applicant considers that the amended claim 9 now recites patentable subject matter.

Page 3 of the specification was amended to reflect the changes made to the claims.

Atenciosamente,



Frank Fischer

frank@dannemann.com.br

Agent for the applicant

Attachments .: Page 3 of the specification and page 12 and 13 of the claims

Rio de Janeiro

RUA MARQUÉS DE OLINDA, 70 - 22251-040 RIO DE JANEIRO - RJ - BRASIL
C. POSTAL (P.O. BOX) 2142 - 20001-070 RIO DE JANEIRO - RJ - BRASIL
TEL.: (+55) 21 2553 1811
FAX: (+55) 21 2553 1812 & (+55) 21 2553 1813
mail@dannemann.com.br

São Paulo

AV. INDIANÓPOLIS, 739 - 04063-000 SÃO PAULO - SP - BRASIL
C. POSTAL (P.O. BOX) 57065 - 04093-970 SÃO PAULO - SP - BRASIL
TEL.: (+55) 11 5575 2024
FAX: (+55) 11 5549 2300
spmail@dannemann.com.br

Agente da Propriedade Industrial
Registro n° 192

Associado a A.B.A.P.I.

P005271-
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<http://www.dannemann.com.br>

cooling compressors.

Brief Description of the Invention

The objectives of the present invention are achieved by means of a sensor assembly, to measure the movements of a fluid pump, the fluid pump being actuated by an electric motor and the electric motor being connectable to a feed voltage, the sensor comprising an accelerometer that is electrically associated to a bias circuit, the accelerometer configuring first and second acceleration transducers, and comprising a feed terminal and a signal terminal, the feed terminal being electrically connectable to the motor feed voltage, and the signal terminal being electrically connectable to an external measuring circuit.

The objectives are also achieved by means of a fluid pump comprising a cylinder, a piston, a housing comprising a fluid-tight terminal hermetically enclosing the cylinder and the piston, thus forming a hermetic assembly, the piston being actuated by an electric motor, the electric motor being linked to an electric voltage by means of a pair of voltage terminals associated to the hermetic terminal, the fluid pump comprising a sensor assembly associated to the cylinder, the sensor assembly comprising a feed terminal and a signal terminal, the feed terminal being connectable to one of the voltage terminals and the signal terminal being electrically connectable to an external measuring circuit, the sensor assembly comprising a bias circuit associated to the accelerometer, the bias circuit being mounted in an internal portion of the housing.

The objectives of the present invention are further achieved by means of a cooler having a sensor assembly that measures movements of the fluid pump, the fluid pump being actuated by an electric motor and the electric motor being connectable to a feed voltage, the sensor assembly comprising an accelerometer and wherein the accelerometer is electrically associated to a bias circuit, wherein the latter comprises a feed terminal and a signal terminal, the feed terminal being electrically connectable to the feed voltage of the motor, and the signal terminal being electrically connectable to the external measuring circuit.

Brief Description of the Drawings

The present invention will now be described in greater detail with

connected to the measuring circuit (55).

7. A sensor assembly according to claim 6, characterized in that the bias circuit (51) comprises a transistor (51a) operatively associated to the signal terminal (33) and to the feed terminal (34).

5 8. A sensor assembly according to claim 7, characterized in that the external measuring circuit (55) comprises a microprocessor (52), the microprocessor (52) measuring the signal of the sensor assembly (1) by means of the signal terminal (33).

9. A fluid pump (10) comprising:

10 - a cylinder (58),
- a piston (57), and
- a housing (50) comprising a hermetic terminal (60) and hermetically enclosing the cylinder (58) and the piston (57), forming a hermetic assembly (100),

15 the piston (57) being driven by an electric motor (30), the electric motor (30) being connected to an electric voltage (V) by means of a pair of voltage terminals (61, 62) associated to the hermetic terminal (60),

20 the fluid pump (10) being characterized by comprising a sensor assembly (1) associated to the cylinder (58), the sensor assembly (1) comprising a feed terminal (34) and a signal terminal (33), the feed terminal (34) being connected to one of the voltage terminals (61, 62) and the signal terminal (33) being electrically connectable to an external measuring circuit (55),

25 the sensor assembly (1) comprising a bias circuit (51) associated to the accelerometer (2), the bias circuit (51) being mounted in an internal portion (50') of the housing (50).

10. A fluid pump according to claim 9, characterized in that the sensor assembly (1) comprises an accelerometer (2) associated to a support means (3), the support means (3) being fixed to the hermetic assembly (100).

30 11. A fluid pump according to claim 10, characterized in that the sensor assembly (1) comprises a base portion (3a), the base portion (3a) being fixedly associable to the hermetic assembly (100).

12. A fluid pump according to claim 11, characterized in that the sensor assembly (1) comprises a weight (2a), connected to a first insulating element (20') and to a second insulating element (20''), first and second acceleration transducers (4a, 4b), a feed terminal (34) and a signal terminal 5 (33) projecting from the first and second acceleration transducers (4a, 4b).

13. A fluid pump according to claim 12, characterized in that the first insulating element (20') is positioned on the surface (3a) of the support of the sensor assembly (1).

14. A fluid pump according to claim 13, characterized in that the 10 first and second acceleration transducers (4a, 4b), the second insulating element (20'') and the weight (2a) are positioned overlapping the first insulating element (20').

15. A fluid pump according to claim 14, characterized in that the bias circuit (51) comprises a transistor (51a) operatively associated to the 15 signal terminal (33) and to the feed terminal (34).

16. A fluid pump according to claim 15, characterized in that the external measuring circuit (55) comprises a microprocessor (52), the microprocessor (52) measuring the signal of the sensor assembly (1) by means of the signal terminal (33).

20 17. A fluid pump according to claim 16, characterized in that the housing (50) comprises a hermetic terminal (60) for passage of the feed terminal (34) and signal terminal (33).

18. A cooler characterized by comprising a sensor assembly (1), as defined in claims 1 to 9.